E7.3 10499
CR-131466

PROGRESS REPORT

Covering the period 1 December 1972 - 31 January 1973 for the: "Study to Demonstrate the Feasibility of and Determine the Optimum Method of Remote Haze Monitoring by Satellite."

This contract is ERTS-A proposal number SR 230, GSFC identification number PR 173.

There are no problems impeding the progress of the investigation.

Accomplishments during this period:

Conditions were unfavorable for the collection of useful data. There was little haze and considerable cloudiness during this period over our test area. The lack of good data during this period does not present a problem, because we had ideal conditions and complete ground truth during several ERTS-1 passes in previous reporting periods. Briefly, the prevailing conditions during ERTS-1 passes in this period were:

14 Dec.	-	Thin cirrus, which might confuse haze analysis.
1 Jan.	-	Holiday, incomplete ground truth.
19 Jan.	-	Partly cloudy, very little haze.

70 mm positive and negative transparancies were received for the 21 October and 8 November passes. On the basis of ground truth data, this pair of frames is thought to be an excellent set for complete analysis. During the 21 October ERTS-1 pass, much of our test area was quite hazy. There were also regions of moderate and light haze as well as clear areas. At the time of the 8 November pass, most sections of the test area, including the regions that were hazy on 21 October, were quite clear. Changes in terrain features are minimal, because these were consecutive passes. Therefore, comparisons of the two images is expected to reveal the effects of haze on ERTS-1 images, and to indicate the optimum method of haze detection by a satellite.

Visual examination of the 21 October and 8 November images reveals a significant decrease in contrast in MSS band 5 in hazy areas. This

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indicates that it will be possible to monitor haze by satellite on an orbit to orbit basis. It isn't possible to visually determine the relative contrast losses caused by haze in the various channels, so the feasibility of haze detection, using ERTS-1 data, on the basis of a single pass, is still open. Digital tapes of the 21 October and 8 November data were ordered.

Digital tapes of the 14 September pass were received, and computer analysis of these data was started. Initially, a listing of a part of each tape was made and examined to insure that format, data values, etc. were as expected.

Pictures of selected areas were produced on our Calcomp 835 film plotter. One such picture is shown in Figure 1. This picture is composed of a section of data 3,240 elements in width and 2,740 scan lines in length, roughly 20 X 20 miles. It was made from MSS band 7. The large allurial fan NE of Los Angeles and George AFB, are the most prominent features. Several such pictures can be joined together to depict areas larger than 20 X 20 miles. This pictorial technique will be used to display the results of quantitative analysis on the data, i.e. ratios or differences of two frames. It will also be useful in identifying areas that have been analyzed.

Accomplishments planned for the next reporting period:

Continue acquisition of ground truth data.
Start digital analysis of the 21 October and 8 November data.

No publications were prepared during this period.

There are no recommended changes in operations and no changes contemplated or requested in standing order products.

Copies of all Data Request Forms and Image Descriptor Forms submitted during this period are included at the end of this report.

Fig. 1 Sample picture produced from digital data tapes.

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DTM _____
TM _____
TM APP. _____

ERTS DATA REQUEST FORM
560-213 (7/72)

1. DATE 12 January 1973

2. USER ID PR 173

4. SHIP TO: Dr. Ernest H. Rogers

ADDRESS _____ ☐ NEW

The Aerospace Corporation

P. O. Box 92957

Los Angeles, Calif. 90009

5. TELEPHONE NO. (213) 648-7244 ☐ NEW

6. CATALOGUES DESIRED

STANDARD ☐ U.S. ☐ NON-U.S

DCS ☐

MICROFILM ☐ U.S. ☐ NON-U.S

ADDDHHMMS OBSERVATION IDENTIFIER	C CENTER POINT COORDINATES	B SENSOR BAND	P PRODUCT TYPE	F PRODUCT FORMAT	T TICK MARKS	NN NUMBER OF COPIES	A AR
1090-18012	N 34-33 W 118-24	M	D	7		1	U
1108-18014	N 34-29 W 118-27	M	D	7		1	U

4

NDPF USE ONLY

D
N
ID
DTM
TM
TM APP.

ERTS DATA REQUEST FORM
560-213 (7/72)

1. DATE January 18, 1973

2. USER ID PR 173

4. SHIP TO: Dr. Ernest H. Rogers

ADDRESS ☐ NEW

The Aerospace Corporation

P. O. Box 92957

Los Angeles, California 90009

5. TELEPHONE NO. (213) 648-7244 ☐ NEW

6. CATALOGUES DESIRED

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DCS ☐

MICROFILM ☐ U.S. ☐ NON-U.S.

ADDDHHMMS OBSERVATION IDENTIFIER	C CENTER POINT COORDINATES	B SENSOR BAND	P PRODUCT TYPE	F PRODUCT FORMAT	T TICK MARKS	NN NUMBER OF COPIES	A AREA
1108-18014	N 34-29	4		M		1	U
	W 118-27			S		1	U
1053-17551	N 34-29	M		M		1	U
	W 116-58			S		1	U

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ERTS IMAGE DESCRIPTOR FORM

(See Instructions on Back)

NDPF USE ONLY
D _____
N _____
ID _____

DATE 15 January 1973

PRINCIPAL INVESTIGATOR Ernest H. Rogers

GSFC PR 173

ORGANIZATION The Aerospace Corporation

PRODUCT ID (INCLUDE BAND AND PRODUCT)	FREQUENTLY USED DESCRIPTORS*			DESCRIPTORS
	Haze			
1053-17551-M	x			
1090-18012-M	x			

*FOR DESCRIPTORS WHICH WILL OCCUR FREQUENTLY, WRITE THE DESCRIPTOR TERMS IN THESE COLUMN HEADING SPACES NOW AND USE A CHECK (✓) MARK IN THE APPROPRIATE PRODUCT ID LINES. (FOR OTHER DESCRIPTORS, WRITE THE TERM UNDER THE DESCRIPTORS COLUMN).

MAIL TO ERTS USER SERVICES
CODE 563
BLDG 23 ROOM E413
NASA GSFC
GREENBELT, MD. 20771
301-982-5406

GSFC 37-2 (7/72)

ERTS IMAGE DESCRIPTOR FORM

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N
ID

DATE 15 January 1973

PRINCIPAL INVESTIGATOR Ernest H. Rogers

GSFC PR 173

ORGANIZATION The Aerospace Corporation

PRODUCT ID (INCLUDE BAND AND PRODUCT)	FREQUENTLY USED DESCRIPTORS*			DESCRIPTORS
	Haze			
1053-17551-M	x			
1090-18012-M	x			

*FOR DESCRIPTORS WHICH WILL OCCUR FREQUENTLY, WRITE THE DESCRIPTOR TERMS IN THESE COLUMN HEADING SPACES NOW AND USE A CHECK (✓) MARK IN THE APPROPRIATE PRODUCT ID LINES. (FOR OTHER DESCRIPTORS, WRITE THE TERM UNDER THE DESCRIPTORS COLUMN).

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301-982-5466

GSFC 37-2 (7/72)